PASYL COMMUNICATIONS

Emergency Stop Switch
p/n P-SW1 and P-SW2

INSTALLATION / USER MANUAL

FOR

EMERGENCY STOP SWITCH

MODEL P-SW1
MODEL P-SW2

P-SW1 P-SW2

Note: P-SW1 Cable color may be different (either white, black, gray, or yellow)

This Document is available online at: http://www.pasyl.com/docs/sw1-sw2.pdf

MODEL P-SW1 IS COMPATIBLE WITH:

ALL MECHATRONICS™ STEPPER MOTOR DRIVERS.
ALL ZENBOT™ CNC CONTROL BOXES.
OTHER STEPPER MOTOR DRIVERS USING DISCRETE GROUNDS TO STOP AXIS MOVEMENTS.

MODEL P-SW2 IS COMPATIBLE WITH:

ALL MECHATRONICS™ STEPPER MOTOR DRIVERS (May need DC Power Adapters.)
ALL ZENBOT™ CNC CONTROL BOXES USING 5.5mm x 2.5mm CONNECTORS (All are as of Oct 2011).
STEPPER MOTOR DRIVERS USING LAPTOP DC POWER SUPPLIES WITH 5.5mm x 2.5mm CONNECTORS. UNITS WITH OTHER CONNECTORS WILL REQUIRE DC ADAPTERS.

First issue dated: Nov 05, 2011
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Models P-SW1 and P-SW2

CAUTION: Opening the Zenbot™ CNC Control Box May Void the Warranty! Contact Zenbot™ and/or Mechatronics™ if in doubt.

Note: Model P-SW2 Does not require installation, jump to page 3

Model P-SW1 (3-Axis Movement Stop - Ground Discretes)

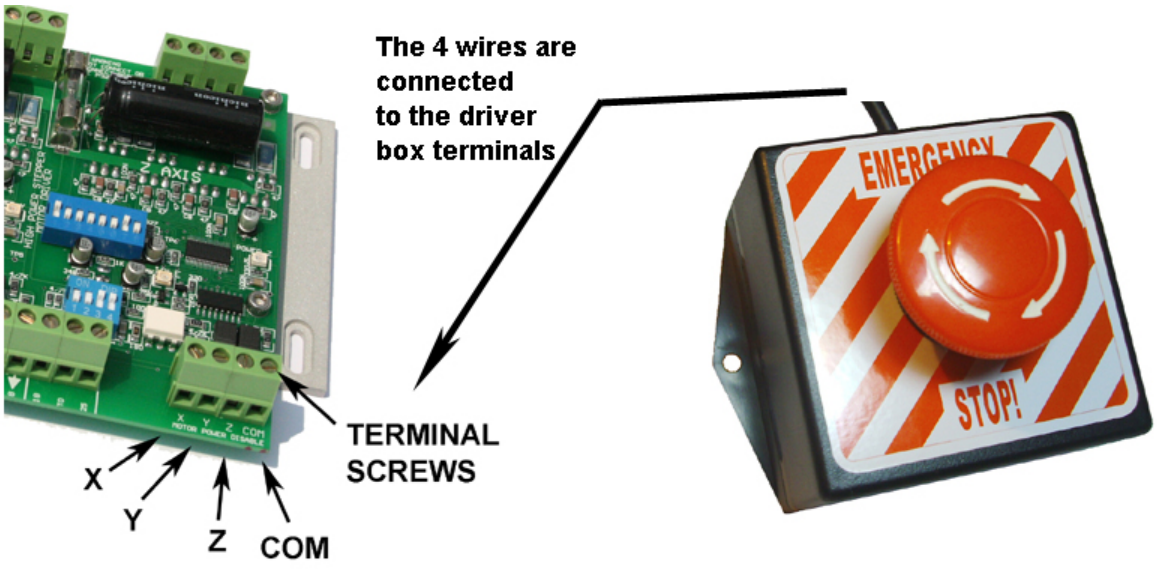

Figure 1: P-SW1 Emergency Stop Switch – Minimum Wiring Required (No soldering)
Note: P-SW1 Cable color may be different (either white, black, gray, or yellow)

This Stop Switch Assembly requires drilling a hole in the stepper motor driver enclosure (i.e.: Zenbot™ CNC Control Box), and the connection of four wires to the terminals of the stepper-motor driver circuit-board. A strain relief is included to secure the cable through an enclosure 31/64 inch diameter hole.

Zenbot™ uses Mechatronics™ boards. Installation should take between 5 and 15 minutes. No soldering is required. There are only 4 wires to connect to a terminal strip on the circuit board. Wires are secured to the terminal strip with screws. You will require a miniature common screw driver.

Model P-SW2 (Power Switch – Plug N' Play)

EMERGENCY
DC Power IN
(From Power Supply)
(5.5mm x 2.5mm Metal Housing DC Power Jack)
DC Power to the
CNC Machine Driver Box
(5.5mm x 2.5mm DC Coaxial Plug with 18 AWG Power Cord)

Figure 2: P-SW2 Emergency Stop Switch – No Wiring Required (Plug n' Play)

Power input through a 5.5mm x 2.5mm Metal Housing DC Power Jack and output through a 5.5mm x 2.5mm DC Coaxial Plug with 18 AWG Power Cord. This Stop Switch Assembly does not require installation for the Zenbot™ CNC machines. Simply connect the Zenbot™ power supply to the unit, and the unit cable to the Zenbot™ CNC Control Box. This unit cuts off power to the stepper motor driver when the switch in pushed-in. To reset, you must turn the mushromm button clockwise until the button pops up. Other DC powered stepper motor drivers may need DC adapters if not using 5.5mm x 2.5mm jacks and plugs.

Unpacking and Assembling

Unpacking and Assembling the Unit

The Stop Switch Assembly may be shipped partially disassembled to minimize shipping costs, assemble it as follows:
(Refer to Figures 1 below.)

1. Remove the four screws (6) attaching the lower cover (5) to the enclosure (2).
2. Remove the mushroom button (4), black holding nut (3), and four screws (6) from inside the enclosure (2).
3. Insert the switch (1) through the upper hole of the enclosure (2).
4. Insert the switch black holding nut (3) over the threads of the switch (1).
5. Hand tighten the black holding nut (3). Do not over tight.
6. Install the mushroom button (4) on the switch (1) by rotating clock-wise.
7. Attach the lower cover (5) with four included screws (6).

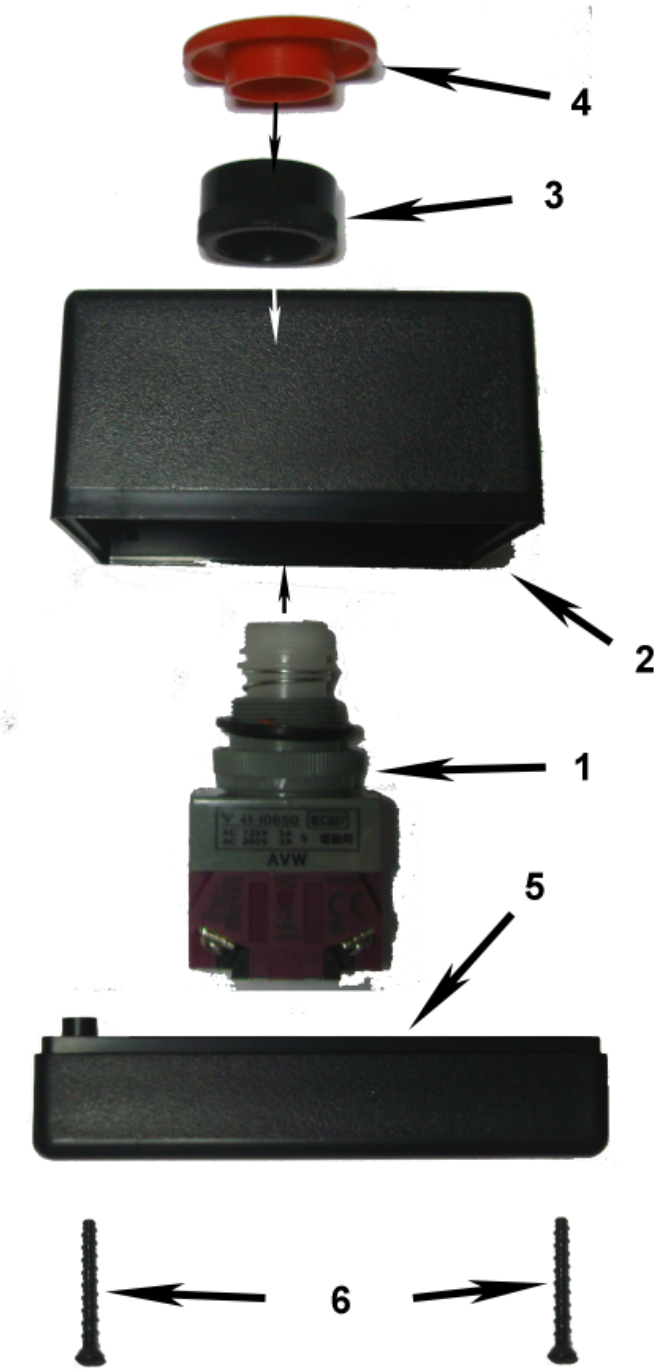

Figure 3: Assembly

Table 1: Tools Required

Note: Equivalent substitutes may be used

Tool Name	Possible Source	Use
Small Phillips Screw Driver	Commercial Off-the-Shelf	To attach bottom cover
Miniature common screw driver	Commercial Off-the-Shelf	To secure wires to circuit board terminals
31/64 inch Drill bit	Commercial Off-the-Shelf	Make hole in stepper motor driver enclosure for cable stress relief and cable

P-SW1 Installation - Zenbot™ CNC Control Box

1. Remove the four screws that attach the bottom cover of the Zenbot™ CNC Control Box to the top cover.
2. Remove the top cover.
3. Inspect the back-left side of the the Zenbot™ CNC Control Box to make sure drilling a hole will not cause any damage (make sure there are no obstructions.)
4. Using a black marker, draw a dot on the back plate of the Zenbot™ CNC Control Box where you want to drill the 31/64 diameter hole.
5. Re-Install the cover (it is easier to drill the hole with the top cover installed.)
6. Drill the 31/64 inch diameter hole. See Fig 4 and Fig 5 Below.

Fig 4: Removing the four screws

7. Drill a 31/64 inch diameter hole, centered approximately 3/8 inch from upper edge, and approximately ½ inch from left edge on the back plate. The hole must be exactly 31/64 inch diameter for the Strain Relief to fit correctly into the hole and hold the cable tightly.

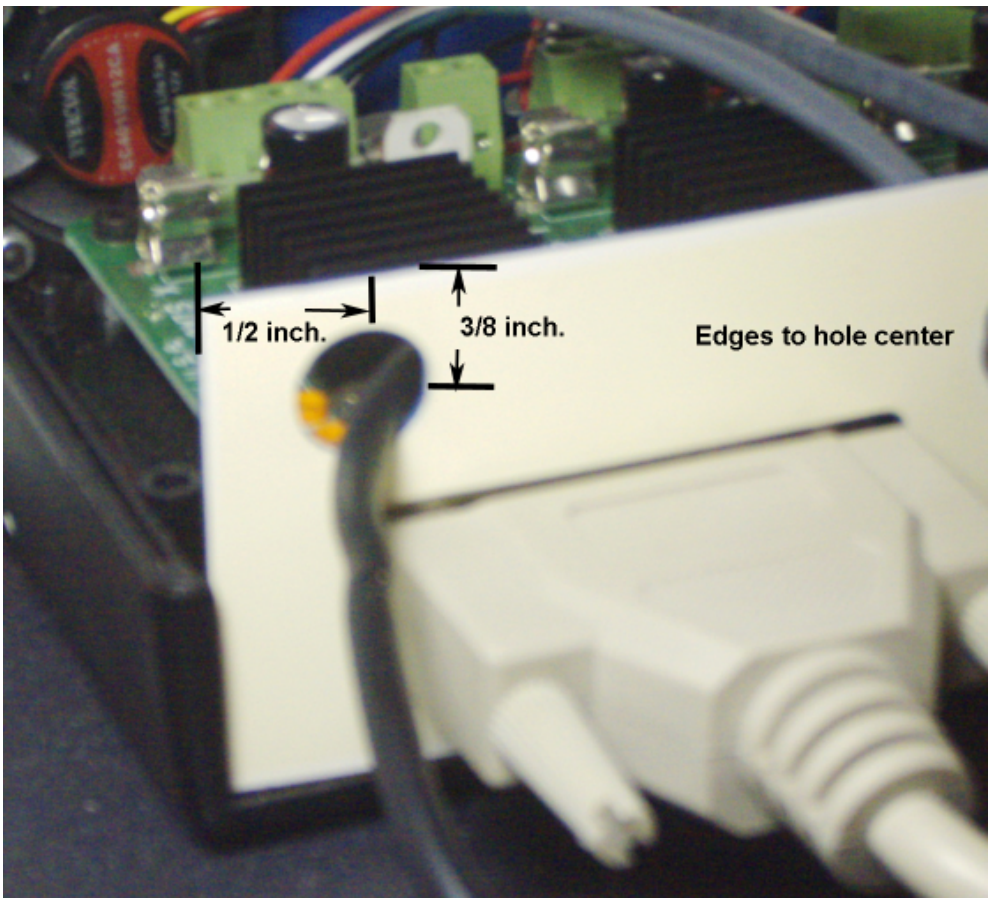

Fig 5: Hole drilling location

Note: Cable color may be different (either white, black, gray, or yellow)

8. Connect the wires of the unit cable to the terminal strips as follows:
    a. Unscrew the four terminal screws X, Y, X, and COM.
    b. Connect the black wire to the COM terminal (refer to Figures below) and tighten the terminal screw.
    c. Connect the other wires to the LIMIT SWITCHES X, Y, and Z terminals and tighten the terminal screws. If installing the switch on a 4-axis CNC driver, install a jumper wire between one of the X, Y, or Z axis terminal to the “A” Terminal.

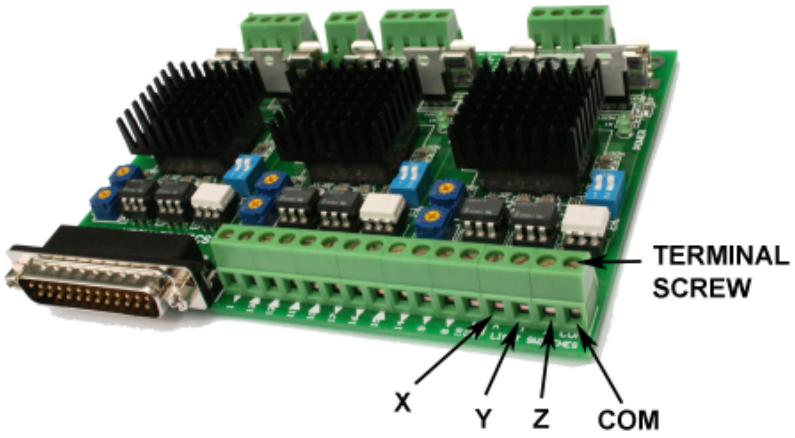

Fig 6: X, Y, Z, COM Terminals

9. Install the strain relief over the cable.

Fig 7: Strain Relief

Note: Cable color may be different (either white, black, gray, or yellow)

10. Insert the strain relief inside the back plate hole. You may have the twist and rotate for the strain relief to go in.
11. Install the four screws that attach the bottom cover of the Zenbot™ CNC Control Box to the top cover.

Fig 8: Strain Relief (Will need twisting to go in)
Note: Cable color may be different (either white, black, gray, or yellow)

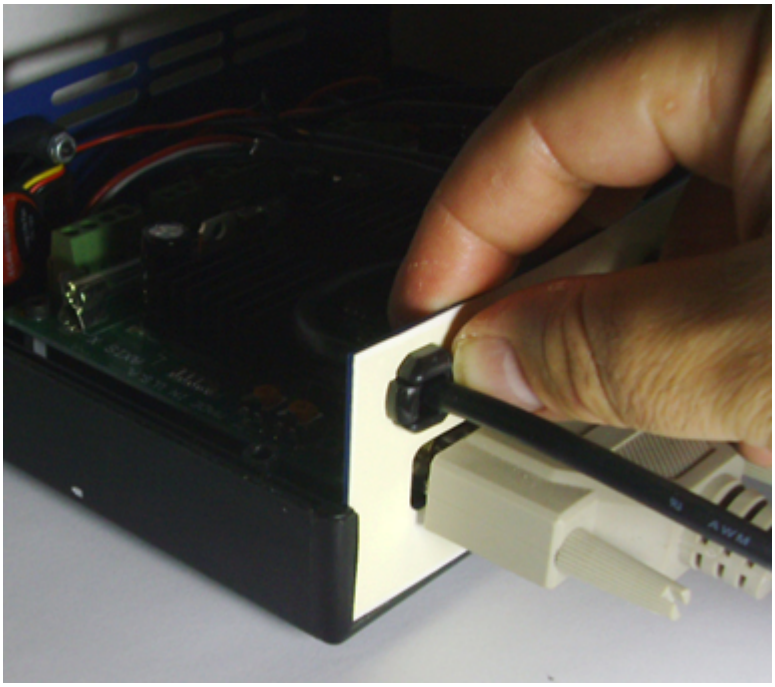

Fig 9: Fully insert strain relief into 31/64 in. dia. Hole
Note: Cable color may be different (either white, black, gray, or yellow)

P-SW1 Installation – MECHATRONICS™ Boards

1. Locate a good location to pass the cable through the enclosure (if any).
2. Drill a 31/64 inch diameter hole in the spot selected. The hole must be exactly 31/64 inch diameter for the Strain Relief to fit correctly into the hole and hold the cable tightly.

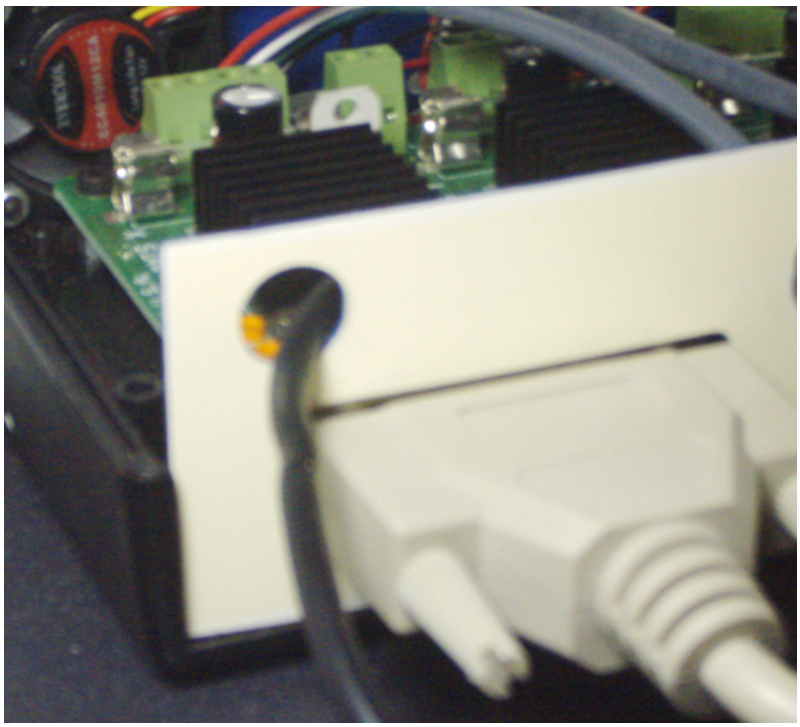

Fig 10: Hole drilling location

Note: Cable color may be different (either white, black, gray, or yellow)

3. Insert the cable through the hole.
4. Connect the wires of the unit cable to the terminal strips as follows:
    a. Unscrew the four terminal screws X, Y, X, and COM.
    b. Connect the black wire to the COM terminal (refer to Figures below) and tighten the terminal screw.
    c. Connect the other wires to the LIMIT SWITCHES X, Y, and Z terminals and tighten the terminal screws. If installing the switch on a 4-axis CNC driver, install a jumper wire between one of the X, Y, or Z axis terminal to the “A” Terminal.

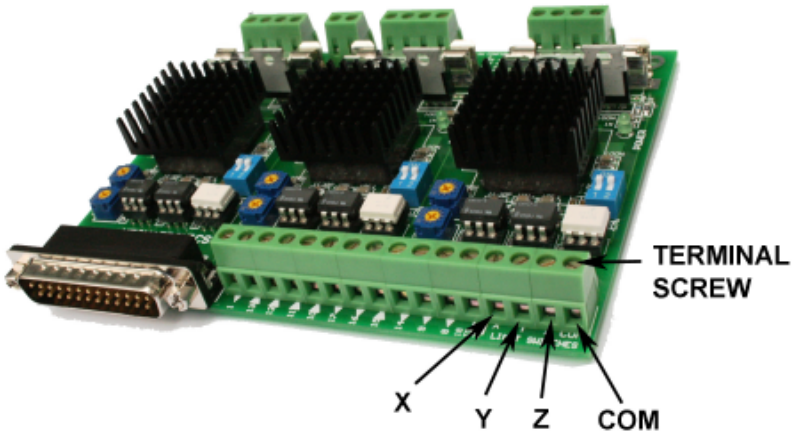

Fig 11: X, Y, Z, COM Terminals

Note: Cable color may be different (either white, black, gray, or yellow)

5. Install the strain relief over the cable.

Fig 12: Strain Relief

6. Insert the strain relief inside the chosen hole. You may have the twist and rotate for the strain relief to go in.

Fig 13: Strain Relief (Will need twisting to go in)
Note: Cable color may be different (either white, black, gray, or yellow)

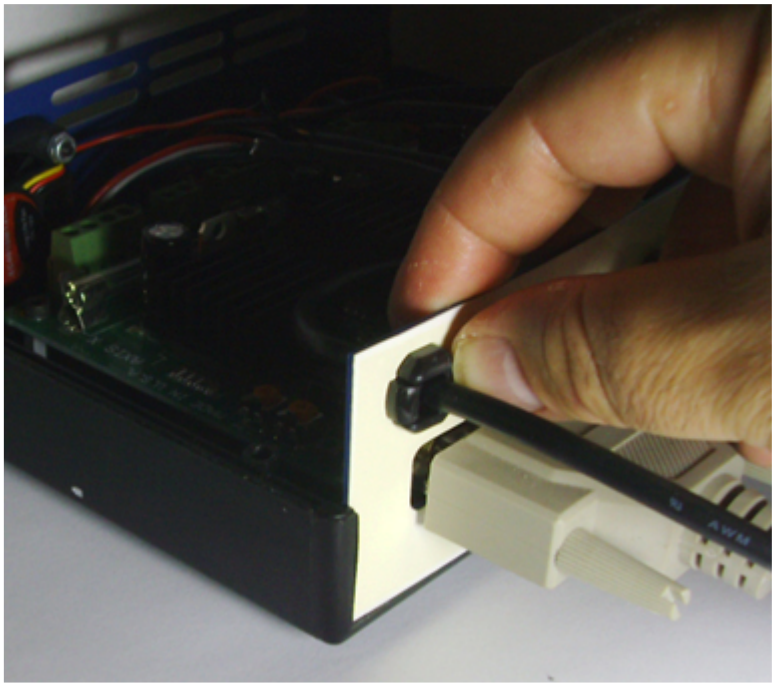

Fig 14: Fully insert strain relief Inside Drilled Hole

12. Attach any cover if removed previously removed.

Testing

<u>WARNING</u>: YOU MUST DO THESE STEPS TO ENSURE THAT ALL AXIS MOVEMENTS WILL STOP WHEN THE EMERGENCY SWITCH BUTTON IS PUSHED! THESE STEPS ASSUME YOU HAVE MACH3 SOFTWARE RUNNING. IF USING DIFFERENT SOFTWARE, MAKE SURE THAT EVERY AXIS CAN BE STOPPED WITH THE SWITCH.

1. Turn on the driver unit and start the CNC Software.
2. Make sure that you can move the CNC machines with the computer keyboard left arrow, right arrow, up arrow, down arrow, page up and page down keys.
3. Push in the Emergency Stop Switch.
4. Make sure that the computer keyboard left arrow, right arrow, up arrow, down arrow, page up and page down keys do not cause the CNC machine to move.

CONGRATULATION! YOU HAVE COMPLETED THE INSTALLATION!

Start/Stop Operation

CAUTION: YOU MUST TEST THE UNIT BEFORE STARTING MACHINE OPERATION!

1. Push down the mushroom button to stop/de-energize the unit.
2. Turn the mushroom button clockwise to turn on/energize the unit.

NOTE: The CAM software does not stop when the CNC machine is stopped with the Emergency Stop Switch.

The part being machined will most likely be lost and will need to be discarded.

Note: This Document is available at:
http://www.pasyl.com/docs/sw1-sw2.pdf

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